

## **South Dakota influenza surveillance: 2007-2008 season**

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### **Summary**

The 2007-08 influenza season was of moderate severity and 26 week duration. A total of 684 laboratory confirmed influenza cases, 394 influenza A and 290 influenza B, were reported to the South Dakota Department of Health (SD DOH) from the beginning of the influenza season starting October 6<sup>th</sup>, 2007 through season's end on May 17<sup>th</sup>, 2008. The peak of the influenza season occurred during the 3<sup>rd</sup> week of February, MMWR Week 8 ending February 23<sup>rd</sup>. There were 361 influenza hospitalizations and 22 influenza deaths reported for the season.

### **Background**

The Centers for Disease Control and Prevention (CDC) guidelines for the 2007-08 season were published in the *Prevention and Control of Influenza* MMWR on June 29<sup>th</sup>, 2007, Vol. 56, <http://www.cdc.gov/flu/professionals/acip/index.htm>

Approximately 132 million doses of influenza vaccine were produced for the 2007-08 U.S. influenza season. The doses were produced by four companies: Sanofi Pasteur, MedImmune Vaccines, Novartis CSL Biotherapies, and GlaxoSmithKline. The trivalent vaccine included A/Solomon Islands/3/2006 (H1N1)-like, A/Wisconsin/67/2005 (H3N2)-like, and B/Malaysia/2506/2004-like antigens.

The SD DOH distributed a total of 123,530 doses of influenza vaccine. Of these 31,770 doses for Community Health Services field offices and 44,040 doses for clinics participating in the Vaccines For Children program. In addition, SD DOH promoted the influenza prevention campaign "*Stop it . . . Don't spread it*" by distributing posters in newspapers and to healthcare and childcare facilities.

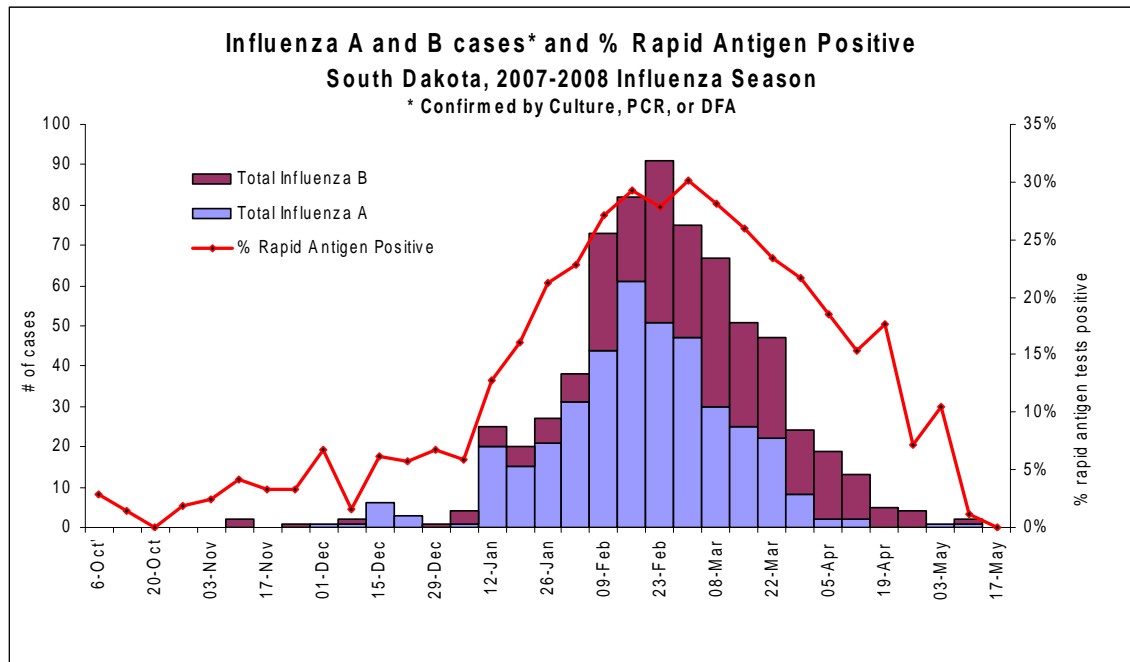
Results from the 2007 Behavioral Risk Factor Surveillance System (BRFSS) showed South Dakota ranking 6<sup>th</sup> in the nation with 77.4% of individuals aged  $\geq 65$  years receiving influenza vaccination. The survey also showed the state ranking 38<sup>th</sup> in pneumococcal vaccination coverage with 63.7% of individuals in that age group receiving vaccine.

### **Epidemiology and Laboratory Surveillance**

The SD DOH and SD Public Health Laboratory (SDPHL) conduct surveillance for influenza year-round, and intensifies activities October through May. The components of South Dakota's influenza surveillance program for the 2007-08 season included 30 sentinel sites; five Sentinel Provider Network physicians; SDPHL culture and PCR testing; Pine Ridge, Rapid City Regional, and Sanford Laboratories DFA testing; reporting of aggregate rapid antigen results; confirmed influenza, influenza hospitalizations and deaths, and institutional outbreaks. During the influenza season, weekly summary reports are posted on the SD DOH website at: [www.flu.sd.gov](http://www.flu.sd.gov).

South Dakota's first confirmed case of influenza was identified during MMWR Week 45, ending November 10th, 2007 (Figure 1). The case, a 23 month-old male from Todd County, was positive for influenza B by PCR and culture at the SDPHL.

**Figure 1**



Source: SD Department of Health, Office of Disease Prevention

Following the first positive detection, influenza activity remained low until mid January. Activity then steadily increased in both percentage of positive rapid antigen tests and laboratory confirmed cases until the peak was reached during the third full week of February, MMWR Week 8, ending February 23<sup>rd</sup>.

A total of 684 confirmed influenza cases, 394 (58%) influenza A and 290 (42%) influenza B, were reported to SD DOH. Of 394 influenza A isolates, 39 (10%) sub typed as A/H1, 105 (27%) sub typed as A/H3, and 250 (63%) were not sub typed. Of the 21 influenza B isolates identified, 1 (1%) were sub typed as B/Malaysia, 20 (7%) as B/Shanghai, and 269 (92%) were not sub typed.

Other viral respiratory pathogen reports included 82 adenovirus, 147 parainfluenza - 1, 25 parainfluenza - 2, 157 parainfluenza - 3, 54 parainfluenza - 4, and 504 respiratory syncytial virus (RSV).

The median age of confirmed influenza cases (Table 1) was 23 years of age with an age range of 20 days to 99 years. There were 310 (45%) cases < 19 years old and 271 (40 %) were 19-64 years old. Individuals >65 years of age accounted for only 104 (15%) of influenza cases.

There were 361 individuals reported hospitalized during the 2007-08 influenza season (Table 1). Influenza-associated hospitalizations became officially reportable on

December 25<sup>th</sup>, 2006. Prior to that, SD DOH requested hospitals, clinics, physicians, and nurses report those events voluntarily. The first hospitalization (Figure 2) was identified during MMWR Week 40, ending October 6<sup>th</sup>. Hospitalizations peaked during week ending February 23<sup>rd</sup> when 47 patients were hospitalized for influenza

**Table 1, Age Distribution of Reported Influenza Cases, South Dakota, 2007-2008 Influenza Season**

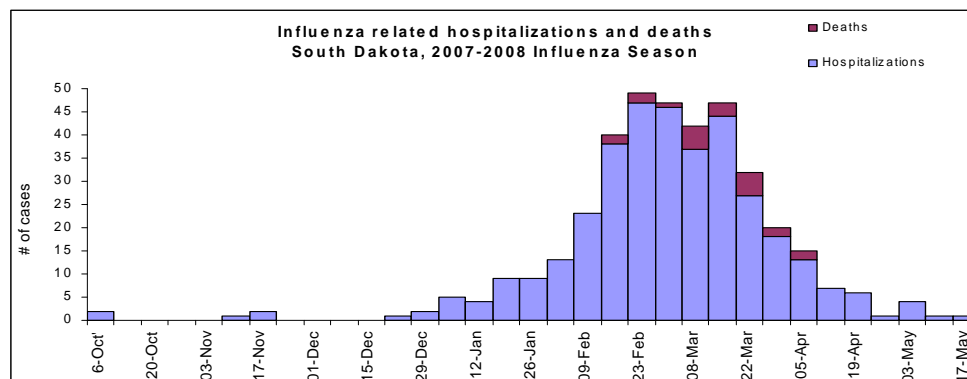
Lab Confirmed Influenza Cases (by DFA, PCR, or culture)			Influenza Associated Hospitalizations		Influenza Associated Deaths
Age Group	# Cases	%	# Hosp	%	# Deaths
0-9	249	36%	73	20%	
10-18	61	9%	4	1%	
19-29	78	11%	19	5%	
30-39	67	10%	23	6%	1
40-49	52	8%	13	4%	
50-59	50	7%	32	9%	3
60-69	36	5%	56	16%	3
70+	91	13%	141	39%	15
<b>Total</b>	<b>684</b>		<b>361</b>		<b>22</b>

Source: SD Department of Health, Office of Disease Prevention

For patients who were hospitalized with influenza, the age range was 5 days to 97 years with a median age of 64 years. Further age stratification revealed 20% of hospitalized cases were <10 years of age and 48% were >65 years of age.

Twenty-two individuals died due to influenza and its complications (Table 1/Figure 2) during the 2007-08 influenza season. Gender breakdown was 36% male and 64% female. The median age was 81, with an age range of 30 - 97 years.

**Figure 2,** Source: South Dakota Department of Health, Office of Disease Prevention



**National Influenza Surveillance Data** (Provisional data)

During the 2007-08 season, influenza A (H1), A (H3), and B viruses have co-circulated in the United States. Influenza A (H3) viruses have predominated during the season overall; however, the most commonly reported influenza virus has varied by week and by region. Nationally 220,666 respiratory specimens were tested for influenza with 39,453 (17.9 %) positive: 28,105 (71 %) were influenza A and 11,348 (29 %) were influenza B. Among the influenza A isolates sub typed, 26 % were influenza A/H1, 74 % were influenza A/H3, and 67 % were not typed. The full report is available at [www.cdc.gov/flu/weekly/fluactivity.htm](http://www.cdc.gov/flu/weekly/fluactivity.htm) .

Interim results from a study carried out with the Marshfield Clinic in Wisconsin found vaccine effectiveness of 44%. Additional information on this study can be found at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5715a1.htm>

For the up-coming influenza season, *The Prevention and Control of Influenza, Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2008* is posted on the following website:

[http://www.cdc.gov/mmwr/preview/mmwrhtml/rr57e717a1.htm?s\\_cid=rr57e717a1\\_e?s\\_cid=ccu072108\\_influenza\\_e](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr57e717a1.htm?s_cid=rr57e717a1_e?s_cid=ccu072108_influenza_e)

The early release of this document was printed in the CDC Morbidity and Mortality Weekly Report, July, 17, 2008, Vol. 57. The 2008-2009 trivalent vaccine virus strains are A/Brisbane/59/2007 (H1N1)-like, A/Brisbane/10/2007 (H3N2)-like, and B/Florida/6/2006-like antigens. All three strains are different from the 2007-2008 Northern Hemisphere influenza vaccine.

The antiviral medications recommended for chemoprophylaxis or treatment of influenza (oseltamivir or zanamivir) have not changed for the 2008-2009 influenza season.